

Does it pay to go back to school?

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Numerous studies have documented the benefits of staying in school. But what about going back to school? The notion that formal education is something one completes before entering the labour market has become increasingly outdated. While rapid technological change drives the growth of a knowledge-based economy and creates the need for new job-related skills, an aging population means that fewer new workers are available. As a result, more adults are re-entering the educational system. The number of Canadians aged 25 to 64 who were full-time students more than tripled from 1976 to 1996 (Gower 1997). Similar trends are reported in other countries. For example, whereas less than 10% of registered students in the U.S. were 35 or older in 1970, this percentage had increased to more than 19% by 2001 (Armour 2003).

Some adult students are already highly educated, but may nevertheless feel the need to upgrade their knowledge and skills. Others may have entered the labour market with less education in low-skilled jobs, and may now want to improve their prospects. In either case, adult students are likely to face more challenges than other students in terms of balancing work, education, and family responsibilities. For example, adult students are likely to be cutting back work hours and incurring greater costs in foregone earnings. On the other hand, going to school without cutting back work hours may result in family responsibilities being compromised.

These costs may be especially prohibitive for older workers, who have less time to make up foregone earnings, and less-educated workers, who are less likely to have their educational activities supported by

employers. Indeed, these groups are less likely to participate in adult education than their younger, better-educated counterparts (Peters 2004).

Going back to school is an investment that is expected to yield returns, yet the data on returns to adult education are sparse, particularly in Canada.¹ Who benefits and by how much? Are the groups most likely to participate—the younger and the more-educated—also most likely to benefit? Using the Survey of Labour and Income Dynamics (see *Data source and definitions*), this study looks at hourly and annual earnings before and after adult education, and compares the earnings gains of those who returned to school with those who did not.

Table 1 Adult education participation rates

	Overall	No certificate	Post-secondary certificate
		%	
Men	13.7	5.3	8.4
17 to 34	19.1	7.8	11.3
35 to 59	9.9	3.5	6.4
Less than high school	8.2	4.6	3.6
High school graduate	13.3	4.5	8.9
College	16.3	5.9	10.4
Bachelor's or above	14.0	5.6	8.4
Women	14.7	6.8	7.9
17 to 34	19.4	9.0	10.4
35 to 59	12.0	5.6	6.4
Less than high school	10.3	6.3	4.0
High school graduate	12.6	4.9	7.7
College	16.9	7.3	9.7
Bachelor's or above	15.8	9.8	6.0

Source: Survey of Labour and Income Dynamics, 1993-2001

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Most adult students are young and have at least a high-school diploma

Over the study period, 14% of men and 15% of women were adult students. The majority of them obtained a postsecondary certificate. As in previous studies (Peters 2004), age and initial level of education were linked to participation in adult education. Young workers (17 to 34) had much higher participation and certification rates than their older counterparts (35 to 59); workers with less than high school education had the lowest rates. However, no simple relationship was seen between initial level of education and participation in adult schooling. For example, the

certification rates of high school graduates and holders of university degrees were practically the same (Table 1).⁵

Most adult education takes place in community colleges and other non-university institutions

Adult students most frequently attended non-university postsecondary institutions such as community colleges, and trade or vocational schools. The overwhelming majority of postsecondary certificates obtained—close to 90%—were at the non-university level (Table 2).

Data source and definitions

The **Survey of Labour and Income Dynamics (SLID)** covers roughly 97% of the Canadian population, excluding those who live in the territories, in institutions, on Indian reserves or on military bases. Each panel of respondents, comprising approximately 15,000 households and 30,000 adults, is surveyed twice a year—once on labour market experiences, educational activity and family relationships and once on income—for a period of six consecutive years.² A new six-year panel is introduced every three years, so two panels always overlap. Presently, two complete panels are available (1993-1998 and 1996-2001), from which the sample for this study is drawn.

Each respondent's level of education is established during the first interview, including all postsecondary certificates the respondent has obtained. Subsequent educational activity is reported each year, including school attendance and new postsecondary certificates received. Changes in earnings over the six years can therefore be compared for those who attended school in the intervening years and those who did not. The study is limited in that information on job-related training activities is available only from 2002 on, so training activities are covered only if they were part of a credit program in a formal educational institution.

Adult students are defined as persons who had previously left school and worked for at least a year before going back to school. To facilitate the analysis, a sample was selected according to the following criteria:

1. Only persons aged 17 to 59 in the first year of observation who responded for all six years were included. In addition, those between 50 and 59 in the first year who received pension benefits at any time during the six-year period were excluded.
2. Those who were full-time or part-time students or who received a postsecondary certificate in the first or last year were excluded. Excluding those who attended school in year one ensures the selection of workers who returned to school, not continuing students. Because school attendance may affect earnings, excluding those who were students in year six ensures a more consistent assessment of gains in earnings over the six years.

3. Because the decision to work part time is likely to influence earnings, only those who wanted to work full time in years one and six—that is, those who worked full time for at least part of the year, or whose main job was either full-time or involuntary part-time—were included.³ Voluntary part-time workers may have turned down a better-paying full-time job because they preferred to work part time, and were thus excluded from the analysis.
4. Because the focus is on the impact of adult education on income from paid employment, people with any self-employment earnings in any year were excluded.
5. Finally, those with an unknown initial level of education were also excluded.

The final sample consisted of 10,999 individuals—5,326 from panel one and 5,673 from panel two.

Hourly earnings are from the main job—the one with the most scheduled hours—at the end of the reference year, or at the end of the job if it ended during the year. Tips, bonuses, and commissions are included. For respondents who reported their wage or salary as an hourly amount, the value is taken directly. For those who reported on some other basis, the amount is converted to an implicit hourly rate, based on number of weeks or months worked and number of hours per week usually worked.

Annual earnings refer to total wages and salaries from all paid jobs during the reference year.

Changes in hourly and annual earnings over the six years were compared for three groups:

- those who did not attend school in the six-year period (non-participants)
- those who attended at some point between years two and five but did not receive a postsecondary certificate (adult students, no certificate)⁴
- those who received a postsecondary certificate between years two and five (adult students, certificate)

Table 2 Educational institutions attended by adult students

	No certificate ¹	Post-secondary certificate ²
		%
High school	19.4	...
Non-university post-secondary institutions	58.5	88.3
Community college/ applied arts and technology	27.9	36.5
Trade or vocational school	13.1	31.0
Business or commercial school	5.7	16.7
CEGEP	4.8	4.1
Multiple	7.0	...
University	22.2	11.7

1 Highest level of schooling obtained.

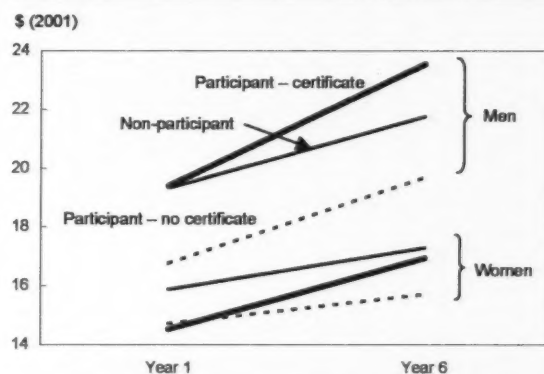
2 For persons who obtained more than one postsecondary certificate, only their most recent certificate is counted.

Source: Survey of Labour and Income Dynamics, 1993-2001

Adult education pays, but only for those who get a postsecondary certificate

Earnings growth over the six-year period of observation was assessed in terms of both hourly and annual earnings. Those who obtained a postsecondary certificate at some point in the second to fifth years realized the largest gains. For example, hourly and annual earnings of women who obtained a certificate grew at roughly double the rate of women who did not participate in adult education. Women who went back to school without obtaining a certificate, on the other hand, had smaller gains than women who did not participate (Chart).

Of course, these results may stem from factors other than adult education. For instance, young workers' earnings typically grow at faster rates than those of their older counterparts, and young workers are also more likely to go back to school and obtain a certificate. So the above results could reflect age differences between the groups being compared rather than differences in adult education. In order to isolate the association between earnings gains and adult education, other variables associated with earnings gains need to be taken into account. A common way to do this is with a regression model (see *Regression model*).

Chart Workers obtaining a postsecondary certificate had the greatest gains in hourly earnings.

Source: Survey of Labour and Income Dynamics, 1993-2001

Getting a postsecondary certificate pays, regardless of initial level of education

In non-technical terms, the regression estimates the average returns to adult education—that is, the difference between earnings gains registered by participants and non-participants, once factors such as age, initial level of education, firm size, union status, province, and occupation have been taken into account.

Regression models were estimated for younger (17 to 34) and older (35 to 59) men and women, as well as men and women with lower (high school and below) and higher (at least some college) initial levels of education.⁷

The results reinforce the previous observation that the returns to adult schooling for those who do not obtain a postsecondary certificate are not significantly different from 0. In fact, they can be negative for older men and women, at least in the short period examined (Table 3). Those who obtain a certificate, on the other hand, enjoy significant gains.⁸

All groups of men who obtained a postsecondary certificate—young and older, more and less educated—had a significantly higher growth in their hourly earnings than those who did not participate in adult schooling. The returns ranged from 6% for men

Regression model

To estimate the returns to adult schooling, an equation similar to the one commonly used in studies of earnings growth (such as Podgursky and Swaim 1987) was specified,

$$\ln(W_{6i}) = \alpha + \delta \ln(W_{1i}) + \beta_1 C_i + \beta_2 NC_i + \theta X_{1i} + e_i$$

where $\ln W_1$ and $\ln W_6$ represent the natural logarithm of annual or hourly earnings in the first and last years of observation, respectively. C and NC represent adult students who did and did not obtain a postsecondary certificate, and X is a set of other variables reflecting characteristics in year 1: age, age squared, level of education, marital status, union status, firm size, full- or part-time employment status, industry, occupation, province, urban or rural residency, sex, and panel.

The equation can be reformulated as follows,

$$\ln(W_{6i}/W_{1i}) = \alpha + (\delta - 1) \ln(W_{1i}) + \beta_1 C_i + \beta_2 NC_i + \theta X_{1i} + \varepsilon_i$$

to estimate the growth in earnings from year one to year six, where β_1 and β_2 are approximately equal to the percentage earnings growth⁶ associated with the two types of adult education, over and above the growth registered by non-participants.

In other words, β_1 and β_2 represent the *average returns* to the two types of adult education (certificate and no certificate).

A nice feature of this model is that it controls for initial wages, which allows some control for unobserved characteristics such as motivation and ability that might influence both participation in adult education and earnings growth.

In order to take into consideration the complex survey design of SLID, the regression analysis was carried out using bootstrap weights and SUDAAN version 9.0.

whose initial level of education was college or higher to 10% for those with high school or less.⁹ In addition, most groups of men (with the exception of those aged 35 to 59) received substantial gains in their annual earnings.

Table 3 Earnings returns to adult education for different groups

	Men		Women	
	Hourly	Annual	Hourly	Annual
	%			
17 to 34				
No certificate	n.s.	n.s.	n.s.	n.s.
Certificate	6.9**	8.9**	10.6**	14.7*
35 to 59				
No certificate	-7.0*	-27.2**	n.s.	-40.2**
Certificate	7.6**	n.s.	n.s.	n.s.
High school or less				
No certificate	n.s.	n.s.	n.s.	n.s.
Certificate	10.1**	8.9*	9.7**	n.s.
College or more				
No certificate	n.s.	n.s.	n.s.	n.s.
Certificate	5.8**	6.0*	n.s.	n.s.

* significant at $P < .10$ (estimates are less precise than **, should be interpreted with caution).

** significant at $P < .05$.

n.s. not significantly different from 0.

Source: Survey of Labour and Income Dynamics, 1993-2001

Benefits to women, on the other hand, seem relatively limited. Only women aged 17 to 34 enjoyed high returns in both hourly and annual earnings—11% and 15% respectively—upon obtaining a postsecondary certificate. In addition, women with high school or less who obtained a postsecondary certificate received significant returns in hourly, but not annual, earnings. Perhaps obtaining a postsecondary certificate allows previously less-educated women to reduce their hours worked at several different jobs and focus on one better-paying job.

For both men and women, those with a low initial level of education profited at least as much or more from getting a postsecondary certificate as those with higher levels of education.

Different pathways for younger and older adult students

Adult students who get a postsecondary certificate may benefit in two different ways: They could receive a raise or promotion within their firm, or alternatively they might get a better-paying job with another employer. These scenarios were investigated using separate models for job-stayers (same main job all six years¹⁰) and job-switchers (main job changed at least once).

Returns were substantial for men who got a postsecondary certificate while keeping the same job, regardless of age and education. In fact, hourly

Table 4 Earnings returns to adult education for those who kept the same job

	Men		Women	
	Hourly	Annual	Hourly	Annual
	%			
17 to 34				
No certificate	n.s.	n.s.	n.s.	n.s.
Certificate	6.3*	9.4*	n.s.	n.s.
35 to 59				
No certificate	n.s.	n.s.	n.s.	n.s.
Certificate	13.3**	8.6**	7.3*	9.5**
High school or less				
No certificate	n.s.	n.s.	n.s.	n.s.
Certificate	15.3*	12.7*	n.s.	n.s.
College or more				
No certificate	n.s.	n.s.	n.s.	n.s.
Certificate	7.6**	8.4**	n.s.	7.7**

* significant at $P < .10$ (estimates are less precise than **, should be interpreted with caution).

** significant at $P < .05$.

n.s. not significantly different from 0.

Source: Survey of Labour and Income Dynamics, 1993-2001

earnings returns were higher for older men and men with high school or less (13% and 15% respectively) than for their younger and better-educated counterparts (6% and 8% respectively). For women who kept the same job, gains associated with certification were confined to those aged 35 to 59 and those whose initial level of education was college or higher (Table 4).

Among job-switchers, obtaining a postsecondary certificate resulted in significant wage returns only for young men and women, and women with high school or less (Table 5). Older workers did not appear to benefit. In fact, older certificate-obtaining women who switched jobs registered some wage loss compared with their non-participant counterparts. Older job-switchers who went back to school without obtaining a certificate also registered substantial losses—women in annual earnings and men in both hourly and annual earnings (see *Older job switchers*).

Dividing the sample into job-stayers and switchers reveals the different ways that younger and older adult students benefit from certification. Older students used their certificate to progress within their firm while younger students moved to a better-paying job.

The different outcomes for younger and older workers may reflect changes in general human capital and firm-specific human capital. General human capital refers to knowledge and skills acquired through formal education, which can be applied to any job. Firm-specific human capital is more limited.

Because younger workers generally have shorter tenure at a given firm, their firm-specific human capital tends to be lower. Therefore, younger workers who switch jobs can benefit from certification because they have increased their general human capital while incurring little loss of firm-specific capital. Older workers who switch jobs, on the other hand, may be less likely to reap immediate benefits from certification because their increase in general human capital may be outweighed by their loss in firm-specific capital.

Summary

The benefits of adult education are widespread, but only for those who get a postsecondary certificate. Those who completed a postsecondary certificate generally registered higher gains in earnings than those who

Table 5 Earnings returns to adult education for those who switched jobs

	Men		Women	
	Hourly	Annual	Hourly	Annual
	%			
17 to 34				
No certificate	n.s.	n.s.	n.s.	n.s.
Certificate	8.4*	n.s.	15.0**	n.s.
35 to 59				
No certificate	-13.9*	-50.0**	n.s.	-49.3*
Certificate	n.s.	n.s.	-11.4**	n.s.
High school or less				
No certificate	n.s.	n.s.	n.s.	n.s.
Certificate	n.s.	n.s.	10.9*	n.s.
College or more				
No certificate	n.s.	n.s.	n.s.	n.s.
Certificate	n.s.	n.s.	n.s.	n.s.

* significant at $P < .10$ (estimates are less precise than **, should be interpreted with caution).

** significant at $P < .05$.

n.s. not significantly different from 0.

Source: Survey of Labour and Income Dynamics, 1993-2001

Older job switchers

Why did older workers who returned to school, especially those not earning a postsecondary certificate, often experience such marked earnings losses relative to other older job switchers? One reason may be that older adult students who did not receive certificates were much more likely to experience long layoffs. Almost a quarter of the older men and more than half of the older women who went back to school but did not receive a certificate experienced an unemployment spell lasting at least a year, compared with only 3% and 7% respectively of older men and women who did not participate in adult education.

Job switchers, age 35 to 59	At least one spell of unemployment lasting 1 year or more	
	Men	Women
	%	
Non-participants	3.3	6.6
Participants, no certificate	23.0	52.0
Participants, certificate	7.0	18.0

Those who experienced long layoffs were more likely to go back to school, but a smaller proportion of them completed a postsecondary certificate. For example, 51% of older women who were unemployed for at least a year went back to school, but just over a quarter got a certificate. In contrast, among older women who were never unemployed for a year or more, only 12% went back to school, but almost two-thirds obtained a certificate. A similar trend is found for men. The long-term unemployed may feel a greater need for adult education, but have fewer resources to complete it.

Job switchers, age 35 to 59	Non- participants	Participated in adult education	
		No certificate	Certificate
Men		%	
Unemployed 1 year +	63.3	24.5	12.3
Other	88.2	3.9	7.9
Women			
Unemployed 1 year +	49.3	36.9	13.8
Other	87.8	4.3	7.9

did not participate, even when factors such as firm size, occupation, industry, union status, and province were taken into account.

Although older workers (35 to 59) and workers with high school or less participated in adult education less often than their younger, more-educated counterparts,

those who did participate often benefited just as much or more. However, gains for older workers were restricted to those who stayed with the same employer, while gains for young workers were larger for those who switched employers.

Older men and women who stayed with the same employer while obtaining a postsecondary certificate registered gains in hourly earnings that were 13% and 7% higher respectively than their counterparts who did not go back to school. Their gains in annual earnings were 9% and 10% higher respectively.

However, the earnings of older men and women who obtained a postsecondary certificate and switched employers did not increase at a higher rate than those of their non-participating counterparts.

For young workers, especially young women, obtaining a postsecondary certificate was associated more with getting a new, better-paying job than with getting higher pay at their old job. Among young women who switched jobs, those who obtained a postsecondary certificate registered average hourly earnings gains 15% higher than those who did not participate in adult education.

Perspectives

■ Notes

1 Statistics Canada's Adult Education and Training Survey (AETS) generates a number of studies on adult education and training in Canada. However, being cross-sectional and designed primarily to measure the incidence and variation in types of adult education and training, the AETS is not well suited to examining the earnings impact of adult schooling (Hui and Smith 2003).

2 As of 2004, the labour and income interviews were combined so that each respondent is surveyed once a year.

3 If a person has more than one job, the main job is defined as the one with the most scheduled hours in the year. The main job is considered to be involuntary part-time if the reason given for being part-time is "could only find part-time work."

4 Persons who received a high-school diploma are included in this group because they were too few to warrant a separate group. Also, a high-school diploma is unlikely to have the earnings impact of a postsecondary certificate.

5 Other factors associated with the decision to become an adult student are detailed in Zhang and Palameta (2006).

6 The exact percentage change in earnings is given by $e^{\beta} - 1$, but β is a good approximation when it has a relatively small value.

7 Insufficient sample sizes precluded non-overlapping regression models—for example, younger men with lower education and younger men with higher education.

8 The certificate per se may not be associated with greater gains in earnings, but rather time spent in school. People who get certificates may spend a longer time in school and thus accumulate more human capital, which might have translated to higher returns even if they had not obtained a certificate. On the other hand, a certificate may act as a signal to employers, simplifying credential recognition and leading to preferential hiring and promotion. Unfortunately, it is difficult to distinguish between these two explanations because detailed information on time spent in school is not available from SLID prior to 2002.

9 Because SLID did not have information on on-the-job training prior to 2002, some of the people classified as non-participants may actually have undergone such training. Thus the returns to adult education may be higher than those estimated here.

10 Only job-stayers who were never laid off are included in the sub-sample. Just over a hundred job-stayers whose employment in their main job was interrupted by a period of layoff or whose layoff history was uncertain were omitted from the analysis.

■ References

- Armour, Stephanie. 2003. "Classrooms filled with returning adults: Difficult economy drives degree-seekers." *USA Today*. June 13, 2003. p B1.
- Gower, David. 1997. "Facing the future: Adults who go back to school." *Perspectives on Labour and Income* (Statistics Canada, catalogue no. 75-001-XPE) 9, no. 3 (Autumn): 32-39.
- Hui, Shek-wai and Jeffrey Smith. 2003. *The Labour Market Impacts of Adult Education and Training in Canada*. Research paper. Education, Skills, and Learning Series. Catalogue no. 81-595-MIE no. 8. Ottawa: Statistics Canada.
- Peters, Valeric. 2004. *Working and Training: First results of the 2003 Adult Education and Training Survey*. Research paper. Education, Skills, and Learning Series. Catalogue no. 81-595-MIE no. 15. Ottawa: Statistics Canada.
- Podgursky, Michael and Paul Swaim. 1987. "Job displacement and earnings loss: Evidence from the Displaced Worker Survey." *Industrial and Labor Relations Review* 41, no. 1 (October): 17-29.
- Zhang, Xuelin and Boris Palameta. 2006. *Participation in adult schooling and its earnings impact in Canada*. Analytical Studies Research Paper Series. Catalogue no. 11F0019MIE, no. 276. Ottawa: Statistics Canada.